CLAIMS

1. A porous media, the bulk matrix of which comprises a material having a low coefficient of thermal expansion; capable of retaining 99.99% or more of particles of a size of about 0.003 microns and larger at 0.2 slpm/cm^2; and a permeability of 3.5×10^{-12} m^2.
2. The media of Claim 1, wherein the material is a metal membrane.
3. The media of Claim 1, wherein the membrane has a permeability between $1.0E^{-13}$ and $1.0E^{-11}$ m^2.
4. The porous media of Claim 2, wherein the metal includes a 64 wt. % iron and 36 wt. % nickel alloy.
5. The metal membrane of Claim 4, wherein the membrane has a porosity between about 40 and about 65%.
6. The media in claim 1 whereas the membrane is made from starting powders where 90% fall between 2 and 36 microns.
7. The media in claim 1 whereas the membrane is made from starting powders where 90% fall between 2 and 26 microns.
8. The media in claim 1 whereas the membrane is made from starting powders where 99% are less than 50 microns.
9. A porous metal frame for supporting a pellicle and a reticle positioned in parallel relationship to each other which comprises:

at least one wall, the ends thereof joined to form an air gap subtended by said at least one joined wall,

two opposing sections on a single wall or walls including the porous media of claim 1.

10. The frame of Claim 9, wherein its shape is rectangular.
11. The frame of Claim 9, wherein its shape is square.
12. The frame of Claim 9, wherein its shape is oval.
13. The frame of Claim 9, wherein its shape is circular.
14. An optical apparatus which comprises the frame of Claim 9 bonded to a transparent pellicle and a reticle optical mask bonded to said frame in parallel relationship to each other.
15. The frame of Claim 9 having at least two walls wherein said walls are joined directly to each other.

16. The frame of Claim 9 having at least two walls wherein said walls are joined together by elbow joints.
17. The frame of Claim 9 having a porous media with a density between about 2.85 and about 4.85 g/cc and having two opposing gas porous walls capable of retaining 99.9999999% or more particles of about 0.003 microns or larger 8.3 $sccm/cm^2$.
18. The frame of Claim 9 having a porous media with a density between about 2.85 and about 4.85 g/cc and having two opposing gas porous walls capable of a permeability between $1.0E^{-13}$ and $1.0E^{-11}$ m^2.
19. The frame of Claim 9 whereas the membrane is made from starting powders where 99% are less than 50 microns.
20. The frame of Claim 9, wherein the frame includes solid and porous media portions.
21. The frame of Claim 9 having two opposing walls being nonporous to gas.
22. The frame of Claim 21, wherein the solid portion defines apertures for receiving porous media.
23. The frame of Claim 22 having two opposing walls having slots which extend through the wall thickness, said slots being filled with a porous media.
24. The frame of Claim 9 having a porous media with a porosity between about 40 and about 65%.